

Compilation of a Province-Wide Air Emissions Inventory for Alberta

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Introduction

In the Province of Alberta, proponent facilities planning to build or expand operations may be subject to rigorous environmental impact assessments and dispersion modelling exercises. This requirement has resulted in numerous industry groups, contractors and government departments developing various emissions inventories over the years.

Recognizing the need for consistency in emission data, Alberta Environment (AENV) and RWDI AIR Inc. (RWDI) embarked on a project to produce a harmonized emissions inventory for the entire province.

The underlying goal of the project is to design, compile, and implement a high quality, comprehensive, consistent, and publicly available air emissions inventory that will provide the necessary information to conduct "place-based" data analysis and perform air dispersion and photochemical modelling to support air quality management in the province of Alberta.

Key Challenges

- No global unique IDs
- Positional accuracy
- Lack of metadata
- Inconsistent naming conventions
- Defining consistent reconciliation "rules"
- Identifying / reconciling overlapping data sets / duplicates
- Case-by-case / source-by-source QA/QC

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"Comprehensive Inventories - Leveraging Technology and Resources"

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AENV Data

Purpose: regulatory compliance / reporting

Format: Paradox / MSACCESS / XML

Sources: 489 point (by source and facility total)

Pollutants: 10

Regional Database #1

Purpose: air dispersion modelling (CALPUFF)

Format: web-based interface / MS Excel

Sources: 963 point, 112 industrial area

Pollutants: 53

Regional Database #2

Purpose: air dispersion modelling (CALPUFF)

Format: MS ACCESS

Sources: 460 point, 234 industrial area

Pollutants: 100

Regional Database #3

Purpose: air dispersion modelling (CALPUFF)

Format: MS Excel

Sources: 482 point, 3 industrial area

Pollutants: 2

Environment Canada (EC CAC) - Provincial

Purpose: Photochemical modelling (SMOKE)

Format: SMOKE .IDA

Sources: >355,000 point, 6472+ area & mobile

Pollutants: 8

Next Steps...

- Integration with in-house database systems
- Validation and gap filling
- Maintenance and management
- Future enhancements

Reconciliation & Harmonization

